

# 固    体    火    箭    技    术

2020 年 6 月 第 3 期

第 43 卷 总第 198 期

## 目    次

### 药柱完整性

HTPB 推进剂脱湿性能表征及影响因素试验研究 ..... 张镇国, 张宏亮, 侯晓, 阎涛, 郭婕(265)

### 推进剂 燃料 燃烧

TMETN 与 PEG 相容性影响因素的介观力学模拟 ..... 陈思彤, 董可海, 夏成, 裴立冠, 唐岩辉(271)

硝酸酯增塑 GAP 推进剂网络结构断键薄弱点表征 ..... 聂海英, 安百强, 黄志萍, 白杰, 刘治国, 周明川(280)

固化剂 TMXDI 在丁羟推进剂中的应用研究 ..... 李爽, 胡期伟, 侯斌, 高扬, 张晨(285)

低燃速高固体含量 HTPB 推进剂研究 ..... 韩晓娟, 苏昌银, 李雪飞, 张爱科, 梁晓东, 李强(290)

HTPE 弹性体玻璃化特性研究 ..... 王晓倩, 甘露, 刘佳, 廖建苹, 王娜, 孙丽娜(296)

固含量对推进剂模拟料压延塑化性能的影响 ..... 彭昭宇, 薛平, 宋秀铎, 张军, 贾明印(302)

两种十氢十硼酸金属盐的表面特性及在富燃料推进剂中的应用

..... 胥会祥, 黄永刚, 李勇宏, 庞维强, 李军强, 薛云娜, 周文静, 赵凤起, 龚建良(310)

### 结构材料 结构力学

复合材料壳体固化降温过程的热力耦合分析 ..... 王丹, 何景轩, 刘凯, 张爱华(317)

烧结温度对 C/C-ZrC-SiC 复合材料性能的影响研究 ..... 刘雪, 欧阳海波, 李翠艳, 黎桂标, 董继杰, 黄剑锋(326)

SiC 对 C/C-ZrC-SiC 复合材料的微观形貌、烧蚀及热物理性能的影响

..... 解静, 孙国栋, 李辉, 孙睿洋, 胡颖露(333)

### 防热材料 绝热材料测试

固体火箭发动机钢壳体与硅橡胶基外防热涂层间用界面处理剂工艺及性能研究

..... 张光春, 罗江凤, 郭飞鸽, 任京辰, 张秋禹, 张力恒(340)

固体火箭发动机外防热涂层粘接剂的制备及性能研究 ..... 葛仁奎, 朱小飞, 李琳, 黄洪勇(346)

### 测试 试验 安全性

高超声速火箭橇导流板气动参数数值研究 ..... 党天骄, 刘振, 周学文, 孙亚川, 李俊(355)

固体冲压发动机自由射流实验空气捕获量测量方法 ..... 袁军, 李叙华(364)

药柱盲孔质量检测算法研究 ..... 于苏洋, 同子龙, 姜春英, 袁睿斌, 张渝(370)

固体火箭发动机撞击安全性数值分析 ..... 孙庆民, 王健(376)

### 运载火箭 导弹技术

类乘波构型机身的设计及钝化对其性能的影响 ..... 罗浩, 张艳华, 张登成, 郑无计(383)

复燃现象对导流器排导流场影响数值分析 ..... 杨桦, 姜毅, 陶倩楠, 张曼曼, 黄阳阳(393)

多约束螺旋机动变结构制导律设计 ..... 段安娜, 同循良(400)

# JOURNAL OF SOLID ROCKET TECHNOLOGY

Jun. 2020 No.3

Vol.43 Sum No.198

## CONTENTS

### STRUCTURAL INTEGRITY

- Experiment on dewetting performance characterization and influencing factor of HTPB propellant ..... ZHANG Zhenguo, ZHANG Hongliang, HOU Xiao, YAN Tao, GAO Jie(265)

### PROPELLANT, FUEL AND COMBUSTION

- Mesoscopic dynamics simulation on factors affecting compatibility of TMETN/PEG blends ..... CHEN Sitong, DONG Kehai, XIA Cheng, PEI Liguan, TANG Yanhui(271)

- Characterization of broken key weak point in network structure of GAP propellant plasticized by nitrate ..... NIE Haiying, AN Baiqiang, HUANG Zhiping, BAI Jie, LIU Zhiguo, ZHOU Mingchuan(280)

- Application of curing agent TMXDI in HTPB propellant ..... LI Shuang, HU Qiwei, HOU Bin, GAO Yang, ZHANG Chen(285)

- HTPB propellant with low burning rate and high solid content ..... HAN Xiaojuan, SU Changyin, LI Xuefei, ZHANG Aike, LIANG Xiaodong, LI Qiang(290)

- Study on glass transition temperature of HTPE elastomer ..... WANG Xiaoqian, GAN Lu, LIU Jia, LIAO Jianping, WANG Na, SUN Lina(296)

- Effect of solid content on calendered plasticizing properties of solid propellants substitute materials ..... Zhaoyu, XUE Ping, SONG Xiudu, ZHANG Jun, JIA Mingyin(302)

- Surface characteristics of two dodecahydrododecaborate metal salts and its application in fuel-rich propellants ..... XU Huixiang, HUANG Yonggang, LI Yonghong, PANG Weiqiang, LI Junqiang, XUE Yunna, ZHOU Wenjing, ZHAO Fengqi, GONG Jianliang(310)

- ..... XU Huixiang, HUANG Yonggang, LI Yonghong, PANG Weiqiang, LI Junqiang, XUE Yunna, ZHOU Wenjing, ZHAO Fengqi, GONG Jianliang(310)

### STRUCTURAL MATERIALS AND MECHANICS

- Thermo-mechanical coupling analysis of composite case during cooling process after cured ..... WANG Dan, HE Jingxuan, LIU Kai, ZHANG Aihua(317)

- Effect of sintering temperature on mechanical performance and ablation resistance of C/C-ZrC-SiC composites ..... LIU Xue, OU Yanghaibo, LI Cuiyan, LI Guibiao, DONG Jijie, HUANG Jianfeng(326)

- Effects of SiC addition on the microstructure, ablative and thermophysical properties of C/C-ZrC-SiC composites ..... XIE Jing, SUN Guodong, LI Hui, SUN Ruiyang, HU Yinglu(333)

- ..... XIE Jing, SUN Guodong, LI Hui, SUN Ruiyang, HU Yinglu(333)

### THERMAL PROTECTIVE AND INSULATNG MATERIALS

- Process and properties of interfacial treating agent utilized between solid rocket motor steel shell and silicone rubber-based external thermal protection coating ..... ZHANG Guangchun, LUO Jiangfeng, GUO Feige, REN Jingchen, ZHANG Qiuyu, ZHANG Liheng(340)

- Study on performance of modified silicone adhesive for SRM external thermal protection coating ..... GE Renkui, ZHU Xiaofei, LI Ling, HUANG Hongyong(346)

- ..... GE Renkui, ZHU Xiaofei, LI Ling, HUANG Hongyong(346)

### MEASURING, TESTING AND SAFTY EVALUATION

- Numerical investigation on aerodynamic parameters of deflector of hypersonic rocket sled ..... DANG Tianjiao, LIU Zhen, ZHOU Xuewen, SUN Yachuan, LI Jun(355)

- Measuring method of Soild ramjet inlet airflow for free-jet test ..... YUAN Jun, LI Xuhua(364)

- Research on algorithm for quality detection of grain blind hole ..... YU Suyang, YAN Zilong, JIANG Chunying, YUAN Ruibin, ZHANG Yu(370)

- Numerical analysis of impact safety of solid rocket motor ..... SUN Qingmin, WANG Jian(376)

### LAUNCH VEHICLE AND MISSILE TECHNOLOGY

- Design of quasi-waverider fuselage and the effect of bluntness on its performance ..... LUO Hao, ZHANG Yanhua, ZHANG Dengcheng, ZHENG Wuji(383)

- Numerical analysis of afterburning's influence on division flow field with deflector ..... YANG Hua, JIANG Yi, TAO Qiannan, ZHANG Manman, HUANG Yangyang(393)

- Design of multi-constrained spiral maneuvering variable structure guidance law ..... DUAN Anna, YAN Xunliang(400)

- ..... DUAN Anna, YAN Xunliang(400)